

I added it to the borders of my land. Tiglath-pileser, the mighty king, the snare of the disobedient, who overwhelmeth the resistance of the wicked! With the exalted might of Ashur my lord against the land of Kharia and the wide-spread troops of the Kurtê, over lofty hills which no king had ever reached, Ashur, my lord, commanded that I should march. My chariots and my host I gathered together, and between the mountains of Idni and Aia, a difficult region, I took my way. Among high mountains which were sharp as the point of a dagger, and which were impassable for my chariots, the chariots I left idle, and the steep mountains I traversed on foot. The whole of the Kurtê had assembled their wide-spread troops . . . in the mountain . . . with them I fought and I defeated them; the dead bodies of the warriors on the high places of the mountain I piled up in heaps, and the blood of their warriors in the valleys and on the heights of the mountains I caused to flow. . . . The people of the land of Adaush feared the mighty advance of my battle-array, and they deserted their territory and to the tops of the lofty mountains like birds they fled. . . . Their fighting men on the peaks of the mountain I piled up in heaps, with the blood of their warriors the mountain of Khirikha I dyed red like scarlet wool. Tiglath-pileser, the burning flame, the Terrible One, the storm of battle (am I)! " (p. 72).

Such is an Assyrian war-chronicle. Its fierce energy is no pretence. Nor can we wonder that this virile people were the masters of Western Asia in their time. This inscription dates to the dawn of their hegemony, when they were just beginning to strike the terror of them into the hearts of the kings of the earth. Most of the other inscriptions in this volume are of the same type.

"The soldiers escaped," says Ashur-nasir-pal (B.C. 885-860), "and occupied a steep mountain; the mountain was exceeding steep, and after them I did not go. The peak of the mountain rose like the point of an iron dagger, and no bird of heaven that flieth reacheth thereto. Like the nest of a vulture within the mountain was set their stronghold, into which none of the kings my fathers had penetrated. In three days the warrior overcame the mountain; his stout heart pressed on to battle; he climbed up on his feet, he cast down the mountain, he destroyed their nest, their host he shattered" (pp. 270, 271).

Always the same forcible and picturesque diction, which is well reproduced by the translator.

But the Assyrian monarch was not only a destroyer; he could build up as well as cast down.

"The palaces, the royal dwellings," says Tiglath-pileser (p. 88), "in the great cities of the provinces of my land, which from the time of my fathers during the course of many years had been deserted, and had decayed, and had fallen into ruins, I have rebuilt and restored. The walls of the cities of my land which were in ruins I have strengthened. The engines for watering the fields throughout the whole of Assyria I have repaired, and stores of grain in greater quantities than those of my fathers I have increased and heaped up. . . . Cedars and urkarinu-trees, and allakanish-trees, in the countries which I have conquered, such trees the like of which among the kings my fathers of old time none had ever planted, I took, and in the gardens of my land I have planted them. And rare garden-fruits, which were not found within my land, I took, and in the gardens of Assyria I have caused them to flourish. Chariots and teams of horses, that my land might be strong, more than formerly, I have increased and I have

strengthened. Unto the land of Assyria I have added land and unto her peoples, peoples."

These extracts will serve to give some idea of the extremely interesting character of these "Annals of the Kings of Assyria." The present volume contains inscriptions dating from the early period to the reign of Ashur-nasir-pal (B.C. 885-860). It is evident that many more volumes of the same size and scope as that which lies before us will have to be published before the editors come to the end of the rich material which lies ready to their hand. For Assyrian history covers another two centuries and a half, occupied by a continuous record of wars, conquests, city and palace building, &c., often containing information of the greatest possible use to the historian.

Isolated matters of interest often crop up in the course of the narrative. Thus we read that Tiglath-pileser I., one of the first of Assyrian kings to reach the Mediterranean, went for a pleasure trip in a Phœnician ship from Arvad, and slew a mighty dolphin in the course of his sail. To the same king the contemporary monarch of Egypt, who must have been one of the immediate successors of Rameses III., of the twentieth dynasty, sent a crocodile as a present, and also a great *pagutu*, whatever that may have been; perhaps it was a hippopotamus. We may wonder what condition the unlucky animals were in by the time they reached Assyria! They were evidently regarded as very remarkable creatures, as we can see from the care with which their arrival is recorded.

The sketch of Assyrian history which precedes the texts is extremely well written, and gives the reader a very good idea of the rise of the famous kingdom on the Tigris.

In conclusion, we must again congratulate the Trustees of the British Museum on their decision to undertake the publication of these important national treasures, and the editors, also, on the excellence of their work.

#### TRUSTWORTHY REAGENTS.

*The Testing of Chemical Reagents for Purity.* By Dr. C. Krauch. Third Edition. Authorised translation by J. A. Williamson, F.C.S., and L. W. Dupré. Pp. 350. (London: Maclaren and Sons, n.d.) Price 12s. 6d. net.

**CAVEAT EMPTOR** is a good maxim, if a somewhat hackneyed quotation. The principle it embodies need not be disregarded, even by the chemist. True, he is a protector of the purchasing public in certain cases where that public cannot take care of itself; but this does not absolve him from the necessity of keeping a watchful eye upon his own purchases. On the contrary, the very fact that he may be called upon, for instance, to certify to the purity of other people's food makes it all the more incumbent upon him to look well after the purity of his own reagents. It may happen—and it has happened—that through insufficient attention to the quality of his chemicals, an analyst may introduce into some article the very impurity which he is required to search for, or an investigator in pure chemistry may be led to propound some brilliant theory which more circumspect working

presently renders untenable. As examples in point, one need only recall the testing of foodstuffs for arsenic, and the alleged conversion of this element into antimony. Wherefore, when the chemist buys his chemicals let him remember the legal tag above quoted, and not trust too implicitly to the manufacturer who supplies them.

The book before us will help to minimise the labour involved in satisfying oneself on this matter. It deals with some hundreds of reagents used by the chemist, and with a few of those generally employed by the microscopist. As regards its plan, the substances are arranged in alphabetical order, beginning with "acetic acid" and ending with "zinc sulphate." Under each heading are described, very briefly, a few of the more prominent characters of the reagent, such as its formula, molecular weight, boiling point, specific gravity, or crystalline form. Then follow, as a rule, a number of "tests for impurities," in which are indicated the probable foreign substances to be met with in the article under examination, and the characteristic methods of detecting them. A paragraph or two dealing with the "quantitative estimation" of the reagent is added in those cases where the addition is applicable. Following this come notes upon "uses" or "uses and storage," in which mention is made of the purpose for which the reagent is generally required, and hints given as to how it should be kept—*e.g.* whether protected from light, in a cool place, under oil, and so on. Finally the "commercial varieties" of the substance are shortly indicated.

On account of the number of articles dealt with, the information afforded is necessarily for the most part very brief, and is always concisely put. Fairly full descriptions, however, are given in the case of some of the more important reagents: thus ten pages are devoted to alcohols, six to ether, and eight to hydrochloric acid; whilst tables of the strengths corresponding to various values of specific gravity are appended to the sections dealing with such reagents as acetic acid, ammonia, alcohol, and the mineral acids. References, and useful ones, are frequently given to literature in which further information is to be found; and in place of the original German sources the translators have very considerably indicated abstracts and papers to be found in English journals and text-books.

All the ordinary reagents are described, and also a number of those less frequently used. As regards the inclusion of the latter, the present writer has tested the volume in respect of a few of the less common reagents, such as the persulphates, iodeosin, and nitroso- $\beta$ -naphthol (which latter, by the way, can be recommended for the separation of cobalt from nickel), and finds them duly mentioned except in the case of the persulphate.

The book is hardly one which calls for much criticism. The value of such a work consists in its bringing conveniently together the chief data pertaining to the various substances, so far as they are criteria of purity. If a good selection is made, and if the information is accurate, the book saves labour and fulfils its purpose. Judged by this standard the volume can be unreservedly commended.

C. SIMMONDS.

NO. 1741, VOL. 67]

#### OUR BOOK SHELF.

*Text-book of Electrochemistry.* By Svante Arrhenius. Translated by John McCrae. Pp. xi + 344. (London: Longmans and Co., 1902.) Price 9s. 6d. net.

THIS work, by the chief founder of modern electrochemical theory, is worthy of a hearty welcome in its English form. It is distinguished from other works on the same subject by being at once more thorough and more simple, the difference being specially apparent in the chapters dealing with potential and electromotive force. Too often the treatment of this branch of the subject leaves the impression (on the student of chemistry at least) that a simple and important result is arrived at from no premisses in particular by some unconvincing mathematical hocus-pocus, wholly devoid of concrete meaning. Prof. Arrhenius is necessarily somewhat mathematical, but the physical significance of each step is so carefully explained that no attentive student of physics or chemistry, with the most rudimentary knowledge of the calculus, can fail to gain a clear idea of the process of reasoning, and, if need be, to reproduce it with understanding. Whilst we have this very desirable treatment of theoretical matters, the practical side of the subject is no less satisfactorily dealt with. In small compass, an immense amount of well-selected and clearly-put information is conveyed; for example, in the two pages which are devoted to the electric arc, the essential features of the phenomenon are given with a precision and conciseness infrequent in physical text-books. The chapter on electroanalysis affords a similar instance of happy exposition. Throughout the book, and especially where matters of recent controversy are under discussion, there is manifested a temperateness of language and sobriety of judgment which cannot be too highly commended.

The first two chapters of the volume give an account of fundamental physical and chemical conceptions, and of the older electrochemical theories. The next five chapters are chiefly concerned with osmotic pressure and the thermodynamical deductions from it, the general conditions of equilibrium, and the velocity of chemical actions. Chapters viii.-xii. are devoted to electrolytic dissociation and the deductions to be drawn from that theory. In chapters xiii.-xv., electromotive force is dealt with; and in the last two chapters are taken up the practical subjects of electroanalysis and the development of heat by the electric current.

The present translation has been made from the German edition, which is a somewhat expanded form of the Swedish original. The English version is well done, and we have to thank Dr. McCrae in addition for an excellent index and a very useful appendix of references.

J. W.

*A Manual of Indian Timbers.* By T. S. Gamble, M.A., C.I.E., F.R.S., F.L.S. Pp. xxiii + 856; illustrated by photographs of wood sections. New (second) and revised edition. (London: Sampson Low, Marston and Co., Ltd., 1902.)

THE first edition of this important work appeared in 1881, giving the results of investigations made by Sir Dietrich Brandis and his assistants, Messrs. Gamble and Smythies. It was edited by Mr. Gamble, and it contained descriptions of 906 species of Indian timbers. The new edition has been entirely prepared by Mr. Gamble; it deals with about 1450 species, including all, or nearly all, really important timber-woods. The total number of species of trees, shrubs and climbers found in India and Ceylon is estimated to amount to about 5000,